DDOE
DISTRICT DEPARTMENT OF THE ENVIRONMENT

DISTRICT OF COLUMBIA

2007 NONPOINT SOURCE POLLUTION PROGRAM

ANNUAL REPORT

February 2008

District of Columbia
Department of the Environment
Watershed Protection Division

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I. Mission and Goals of the District of Columbia's Nonpoint Source Program

The District of Columbia's Nonpoint Source Program is an innovator in nonpoint source pollution prevention and control in the urban environment. Our Program protects District watersheds from nonpoint source pollution, safeguards city water and soil resources, and protects the health, welfare and safety of citizens using those resources. The Program works in partnership with other government agencies, environmental organizations, citizens and private industry to increase stakeholder awareness and involvement in the clean-up effort along the Anacostia River, Chesapeake Bay and other local waterways. Education and outreach efforts equip city residents with knowledge and tools to help them prevent nonpoint source pollution in their neighborhood streams.

The Nonpoint Source Program has established short-term milestones that mark progress toward long-term goals. Listed below, these goals aim to reduce nonpoint source pollution from urban runoff, construction, and hydrologic/habitat modification. A more thorough discussion of Program milestones and goals can be found in the *District Nonpoint Source Management Plan II* (2000).

- Support activities that reduce pollutant loads from urban runoff, construction activity, combined sewer overflows and trash disposal for the purpose of attaining present designated uses by 2015 and future designated uses by 2025.
- Support programs and activities that strive to restore and maintain healthy natural habitat, species diversity and necessary base flow to all of the Anacostia River tributaries by 2015 and to all surface waters of the District of Columbia by 2025 by restoring degraded watersheds and preserving healthy ones.
- Coordinate the District Nonpoint Source Program efforts with other District, federal, not-for-profit, environmental advocacy, private sector programs and adjoining jurisdictions to deliver the best possible nonpoint source pollution prevention and control services in the District of Columbia with the resources available.
- Carry out effective information and education campaigns on nonpoint source pollution prevention to targeted audiences who live, work, teach or visit in the District of Columbia and its watersheds, reaching at least ten-thousand (10,000) individuals each year.

II. Executive Summary

This annual report is written in response to *Sections 319 (h)(8) and (11) of the Clean Water Act (33 USC 1329),* for the purpose of documenting progress made in Fiscal Year 2007 by the District of Columbia in implementing its *Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000).

As in previous years, the District of Columbia's Nonpoint Source Program has made significant progress toward achieving its goals. Accomplishments in fiscal 2007 include the following:

- Regulated construction activities throughout the District by reviewing one-thousand-six-hundred-fifty-eight (1,658) construction plans, conducting six-thousand-nine-hundred-twenty-four (6,924) construction site inspections, inspecting three-hundred-eleven (311) storm water management facilities and conducting one-hundred-thirty-six (136) post-maintenance inspections. In combination with two-hundred-eighteen (218) enforcement actions, this work insured compliance with the most current storm water, sedimentation and erosion control laws.
- Completed the final year of vegetation monitoring of the Anacostia River Fringe wetland project and presented the findings at the annual Ecological Society of America conference. The project has been a great success with near complete vegetation coverage and minimal impacts from resident Canada geese.
- Enhanced environmental education in the District by providing Meaningful Watershed Educational Experiences to five-thousand-nine-hundred-twenty-six (5,926) District school children, conducting an annual Schoolyard Greening Tour for teachers and residents, hosting several environmental education training sessions for teachers and District of Columbia Environmental Education Consortium members, and funding schoolyard greening sites at 5 District schools.
- Developed a new residential BMP program called "RiverSmart Homes." The program is an incentive-based program that will encourage homeowners to install low-cost residential best management practices and institute green landscape management practices that will help improve local water quality.

The highly urbanized setting and multiplicity of land ownership within Washington DC creates unique challenges for Nonpoint Source Program pollution reduction efforts. These circumstances can, however, also provide opportunities to form creative partnerships and test innovative technologies.

The Nonpoint Source Program continues to pursue development of monitoring and measurement techniques that will provide improved assessment of nonpoint source pollution control technique effectiveness. In fiscal 2008 the District will continue to strengthen its existing programs for regulation and enforcement, stream and wetland restoration, education and outreach, and pollution prevention.

III. The District of Columbia's Nonpoint Source Program

In 1990, the government of the District of Columbia formed its Nonpoint Source Program to address the control and prevention of nonpoint source pollution impacting District surface and ground waters. In January 1998, the Nonpoint Source regulatory program was transferred to the District of Columbia Department of Health, under the Environmental Health Administration. As part of this programmatic realignment, the District of Columbia established the Watershed Protection Division in October 1998. Watershed Protection Division is now the division responsible for the Nonpoint Source Management Program. In November 2005 the District of Columbia City Council voted to create a new District Department of Environment (DDOE). The Watershed Protection Division now resides under a new Natural Resources Administration within the District Department of the Environment (DDOE).

DDOE assesses the health of all significant waterbodies in the District, and prioritizes water quality improvement efforts based on data gathered from water quality monitoring. DDOE, then, characterizes waterbody impairments and threats; these characterizations are included in the District of Columbia's Section 305(b) reports as required by the federal Clean Water Act. The 2006 305(b) report describes many of the District waterbodies as not supporting their swimmable (primary contact recreation) and fishable (fish consumption) designated uses.

Urban storm water runoff is a ubiquitous source of pollutants to District of Columbia waterbodies. Primary nonpoint source pollutants of concern include nutrients, sediment, toxicants, pathogens and hydrocarbons. The few waterbodies that partially or fully support a designated use are also threatened by nonpoint source pollutants. A process to rank watersheds for nonpoint source implementation in the District, conducted by the District Nonpoint Source Program in 1995, determined that the Anacostia River and its tributaries should receive highest priority, followed closely by Rock Creek and its tributaries. The outcome of this formal ranking process further galvanized DDOE's prior belief that the Anacostia River is the District's most daunting water quality problem. For more than ten years, the District of Columbia has been using a watershed approach to raise awareness and unite public and private sector resources to tackle the water quality problems of the Anacostia River.

To properly address the water quality problems associated with the District's urban environment, the District amended its approved Nonpoint Source Management Plan (1989) and created the *Nonpoint Source Management Plan II, Addressing Polluted Runoff in an Urban Environment*, (2000). This document outlines a comprehensive strategy for managing nonpoint source pollution in an urban environment in an effort to restore beneficial uses by the year 2025. The Plan sets goals and objectives of specific milestones that will be achieved.

The District employs both regulatory and non-regulatory approaches to reach its Nonpoint Source milestones. DDOE programs that fall under regulation and enforcement include the:

- Storm Water Management Program
- Soil Erosion and Sediment Control Program
- Floodplain Management Program
- Compliance and Enforcement Program (for storm water control Best Management Practices)

The combined aim of these programs is to ensure that any development or construction activities occurring within the District properly control potential erosion or runoff from their site areas and properly adhere to all federal and city laws relating to floodplains and waterways. In addition, these programs ensure that Best Management Practices are installed correctly and receive appropriate maintenance and upkeep. Non-regulatory programs include:

- Wetland and river habitat creation and restoration programs

- Use of Low Impact Development innovative Best Management Practice technology
- Education and outreach programs
- Pollution prevention programs
- Use of sustainable practices

Through these non-regulatory programs, the District educates community members about nonpoint source pollution and how their actions contribute to it, with the ultimate goal of changing personal behavior for an effective long-term solution. Additionally, the District tests and develops innovative approaches to urban nonpoint source pollution reduction, increases acceptance and implementation of Low Impact Development, and provides support and financial incentives for citizens wishing to implement Low Impact Development and pollution prevention techniques.

The District also develops partnerships and collaborations to address the issue of nonpoint source pollution. In recent years, the District has worked regularly with federal agencies to ensure that nonpoint source pollution prevention is addressed on both city and federal lands.

Overall, the nonpoint source management strategy attempts to change the mindset and actions of individuals and communities, elected leaders and agency heads. The strategy concentrates activities on targeted tributaries, and strictly enforces regulations that protect the District's water quality and natural resources. The District does not shoulder the entire load, but rather combines assistance from many stakeholders and partners, in an effort to deliver clean water and healthy watersheds to the citizens of the Capitol city and its visitors.

A. Sediment, Storm Water, Floodplain Management, and Low Impact Development

Highlights

- Reviewed one-thousand-six-hundred-fifty-eight (1,658) construction plans for compliance with sediment and storm water pollution control.
- Processed environmental impact screening forms for thirteen (13) projects.
- Received and approved sixty-four (64) plans for Low Impact Development projects in the District of Columbia.
- Facilitated the completion of several LID retrofit projects in the Anacostia watershed.

Construction Plan Review

In fiscal 2007, to meet its objective of reducing the amount of untreated storm water from construction sites, Watershed Protection Division reviewed one-thousand-six-hundred-fifty-eight (1,658) construction plans for compliance with sediment and storm water pollution control. This review process led to the approval of one-thousand-five-hundred-fifty-two (1,552) of these plans.

Watershed Protection Division processed three-hundred-forty-eight (348) requests for flood zone determinations at various properties in the city. Flood zone information is critical in determining the availability of flood insurance and eligibility for Federal assistance in the event of natural disasters caused by floods. Additionally, Watershed Protection Division processed eighty (80) requests for information on soil characteristics and reviewed approximately two-hundred-fifty-eight (258) geotechnical reports to assess the suitability of soils for various construction projects.

Environmental Impact Regulation

In fiscal 2007, Watershed Protection Division reviewed environmental impact screening forms for thirteen (13) projects.

Low Impact Development (LID) Retrofits in Targeted Subwatersheds

In 2007, DDOE Watershed Protection Division continued to work with subgrantees and contractors to complete Low Impact Development retrofits in the Pope Branch, Ft. Dupont and Watts Branch subwatersheds.

Pope Branch LID retrofits

Ft. Dupont LID retrofits

The bioretention cells in Pope Branch Park were built in 2007. The cells treat a large residential street (approx. 3 blocks long) and were planted with native perennials and shrubs. Approximately 20 high school students from Anacostia High School as well as a dozen members of the community participated in planting the bioretention cells. A local watershed group, the Pope Branch Park Restoration Alliance, was actively involved in the planting and will maintain the gardens in the future.

Ft. Dupont LID retrofits

The bioretention cell projects, designed to treat approximately 3.95 acres of impervious surface in the Ft. Dupont subwatershed, were completed in 2007. Storm water from two large parking lots in Ft. Dupont Park and a long section of roadway are now treated by these cells. The National Park Service is maintaining these facilities and had significant participation in the design of these projects.

Watts Branch LID retrofits

Washington Parks and People was the recipient of a subgrant to install four Low Impact Development retrofits in Watts Branch. Plans have been completed for these retrofits and will be integrated into the park redesign that is being undertaken by Deputy Mayor's Office for Planning and Economic Development. These retrofits will treat over a half an acre of impervious surface. Now that the technical coordination issues associated with the LID retrofits, roadway and curb repairs by DDOT, and park restoration have been resolved, the project will be constructed in 2008.

B. Inspection and Enforcement

Highlights

- Improved compliance with District of Columbia soil erosion and sediment control and storm water management regulations.
- Strengthened soil erosion and sediment control and storm water management regulations.
- Work has begun on the development of a guidance DVD and an Inspection and Maintenance Guidance Manual for the Low Impact Development Practices. Homeowners, contractors, and students as well as other persons that use these techniques are the primary target audience for instructional DVD.
- Continued to develop better records management tools for shared compliance records for Construction Inspections and Post-construction inspections and enforcement actions for storm water BMPs and erosion and sediment control measures.
- Participated in the EPA audit of maintenance and house keeping for select District of Columbia agency facilities.

Compliance

During fiscal year 2007 Watershed Protection Division improved compliance with District of Columbia soil erosion and sediment control and storm water management regulations by conducting six-thousand-nine-hundred-twenty-four (6,924) inspections at construction sites and issuing two-hundred-eighteen (218) enforcement actions.

Watershed Protection Division minimized pollution in storm water runoff to the Anacostia and Potomac rivers and their tributaries by inspection of three-hundred-eleven (311) storm water management facilities and one-hundred-thirty-six (136) post-maintenance inspections to ensure proper maintenance of these facilities. Storm water management facilities were restored on an as-needed basis and appropriate enforcement actions were taken to ensure compliance.

Watershed Protection Division has improved customer satisfaction by investigating and resolving one-hundred percent of one-hundred-seventy-eight (178) citizen complaints relating to soil erosion control and drainage problems in a timely manner.

Regulatory Improvement

Watershed Protection Division is in the process of finalizing the review of its soil erosion and sediment control and storm water management regulations. The purpose of this review is to strengthen the existing regulations. Once this review is completed, the document will be submitted to the Office of the Attorney General for review and approval.

Regulatory Guidance

Watershed Protection Division has completed the first draft of the revised District's *Erosion & Sediment Control Handbook*. The handbook will provide compliance guidelines to the regulated community. Watershed Protection Division will proceed with the Handbook once the storm water management regulations are complete.

DDOE signed a Memorandum of Understanding with the US Department of Agriculture, Natural Resources Conservation Service and other parties for *The Maintenance of a Soil Survey for the District of Columbia.* This is an on-going project that will provide soil data necessary for city planners, developers and engineers to appraise and manage land, and to understand, protect and enhance the environment.

C. Habitat Creation and Restoration

Highlights

- Conducted 5th and final year of vegetation monitoring at River Fringe wetland project.
- Removed fencing from River Fringe wetland with City Year volunteers.
- Initiated monitoring of Heritage Wetland project.
- Co-sponsored clean up event at Pope Branch that attracted over 100 volunteers.
- Initiated scoping for Broad Branch Daylighting project.
- Initiated design work with Pope Branch stream restoration contractors.
- Finalized plans and permits for Watts Branch Stream restoration project.

Heritage Wetlands

Hibiscus in flower in Heritage wetland

In 2007, DDOE began monitoring with US Geological Survey (USGS) the new 6 acre tidal wetland restoration project. Transects and plots were installed. The plots were surveyed and "GPS"ed. In the immediate first "visual" analysis, the restoration project is thriving. DDOE and USGS will monitor this project for 3 additional years to determine any adverse changes that may require adaptive management.

Anacostia River Fringe Wetland Monitoring

DDOE completed the final year of vegetation monitoring of the River Fringe wetland project and presented the findings at the annual Ecological Society of America conference. The project has been a great success with near complete vegetation coverage and minimal impacts from resident Canada geese. DDOE also worked with National Park Service to control limited areas of *Phragmites australis* and worked with City Year volunteers to remove some of the interior fencing.

Monitoring of the restored wetlands in the Anacostia

Pope Branch Stream Restoration Design and Clean-ups

In 2007, DDOE worked with DC Water and Sewer Authority (WASA) and contractors to initiate the designs for this stream and sanitary sewer replacement project. DDOE involved the community through the Pope Branch Park Restoration Alliance, a group of citizens deeply interested in the project. DDOE also involved citizens in the planting of two raingardens in the park and co-sponsored a clean-up event as a part of Martin Luther King Service Day in February. It is anticipated that the design work will take the majority of 2008, with construction following shortly thereafter.

2007 was first year that local residents, District government, and non-profit partners made Pope Branch a participating site for the broader city-wide MLK service day.

Watts Branch

DDOE continued to work with US Fish and Wildlife Service (USFWS) in 2007 to finalize the stream restoration designs and incorporate all comments from the numerous stakeholders in the project. DDOE guided the creation of interpretive outreach boards that will be installed in two central locations of Marvin Gaye Park. DDOE also gained the cooperation of WASA which has agreed to fund the replacement of sanitary sewer lines running parallel to Watts Branch. Finally, DDOE installed a storm water

monitoring station in lower Watts Branch to monitor sediment and nutrient loads in the stream. This station will be important in documenting the results of the stream restoration. Construction will begin in 2008.

Additionally, DDOE received the National Fish and Wildlife Federation (NFWF) Targeted Watershed Grant which will allow DDOE to fund Washington Parks and People to plant trees in the subwatershed and create a plant nursery.

Hickey Run

During fiscal year 2007, a comprehensive assessment of historical monitoring data for Hickey run was conducted by DDOE. Assessment of the data indicated that Hickey Run achieved the water quality goals for oil and grease with levels less than the water quality standard of 10 mg/L. Last year, Hickey Run was removed from the 303(d) list of impaired waters for oil and grease. This accomplishment was due to DDOE's extensive outreach efforts in the Hickey Run sub-watershed to target local businesses including automotive repair shops and other potential sources of oil and grease. Businesses were provided with educational resources, comprehensive surveys, and follow-up visits.

To continue with best efforts towards compliance with Hickey Run water quality standards, a BMP structure will be installed in the main stem of Hickey Run. The BMP will be designed to abate all floatable material, grease and oil coming from upstream. Preliminary designs have been completed. It is anticipated that the final design of the proposed BMP will be completed by the next fiscal year. A build contract will be issued following the approval of the BMP design.

Broad Branch Daylighting

In 2007, DDOE began the feasibility scoping process for this project. Discussions with the National Park Service, District Department of Transportation, and WASA were initiated. All indications point towards a project that will be embraced by all stakeholders. In 2008, DDOE will begin community outreach and design work.

At this site, stormwater from the street will be treated and directed into a historic channel.

D. Environmental Education and Outreach

Highlights

- DDOE and partners provided Meaningful Watershed Educational Experiences to five-thousand-nine-hundred-twenty-six (5,926) District school children.
- Developed five new schoolyard conservation sites at District schools through the Greener Schools, Cleaner Water Program.

- Organized the first DC School Garden Week and showcased five DC Public Schools on a schoolyard greening tour as part of the event.
- Conducted a Standards Workshop for environmental education providers in the District of Columbia.
- Received a three-year B-Wet, National Oceanic and Atmospheric Administration grant award with several DC Environmental Education Consortium partners and DC Public Schools to provide training to teachers and Meaningful Watershed Education Experiences to DC Public Schools fourth graders.

Greener Schools, Cleaner Water Program

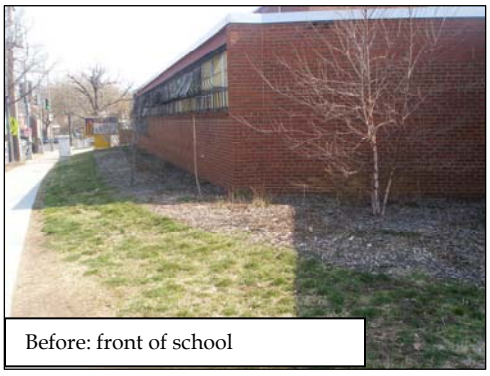
WPD's Greener Schools, Cleaner Water Program has completed another year of developing schoolyard conservation sites. The fifteen teachers that participated in the program in fiscal year 2007 received 12 hours of training at the beginning of the project in schoolyard assessments, soils, native plants, team building, community resources and learning how their sites help improve water quality and reduce nonpoint source pollution in the watershed.

Teachers received 125 hours of classroom assistance, helping them to integrate the use of their sites into the DC standards-based curriculum while serving 251 students. As a part of this program, teachers are given an opportunity to take their students out on the Anacostia and/or Potomac to learn more about the importance of stewardship of the rivers and the Chesapeake Bay.

The schoolyard sites, LaSalle Elementary, Whittier Elementary, Cesar Chavez Public Charter High School, Amidon Elementary and Kamit Institute Charter School, were nearly completed in 2007. The following site improvements were accomplished:

LaSalle Elementary

LaSalle constructed a French drain system that allows stormwater runoff from the sidewalks' impervious surfaces to be treated naturally as it flows into the constructed wetland. This area is accessible to the students for an outdoor classroom that supports many of the Life Science standards of learning. Additionally, a native butterfly garden was created along the front of the school building with a host of native plants. A memorial garden space with trees provides shade and more space for outdoor interactive classes on the right side of the school.



Before: front of school

After: native butterfly garden, front of school

Future plans:

- 10,000 ft^2 greenroof will be installed on the roof of the main building.
- Benches will be added in the memorial garden

Constructed wetland

Whittier Elementary

Whittier ES is located in a residential neighborhood near a CSO stormwater system in northwest DC. With the help of Whittier's teachers and students, volunteers created this outdoor wildlife habitat that can be utilized by children in the outdoors and viewed from classrooms as well. The habitat includes a butterfly garden, a rain gauge, bird feeders, bird baths, benches for students, and an interpretive stepping-stones trail. The gardens are used for the community and after-school programs as well.

Whittier: native species of flowering plants are planted

Cesar Chavez Public Charter School

Chavez Public Charter is a good example of what can be done to transform an outdoor learning space at a new or renovated school. The project was implemented in several stages. Volunteers planted a small number of trees, shrubs and perennials that are attractive to birds and butterflies. On another Community Action Day, volunteers amended the soil for native perennial plantings. The group then developed a stone trail

from the walkways to the garden. Benches and picnic tables were constructed to encourage students and staff to engage in observation and journaling.

Before: newly renovated schoolgrounds

After: native garden and rain garden established

Future plans:

- Plant more native trees to provide cover and shade.
- Develop a composting program that will encourage waste minimization and recycling.
- Expand the garden and possibly create a small wetland area.

Kamit Institute Charter School

A large cleanup was completed at the Kamit Institute Charter School. Invasive plants and trees were removed by the students and Americorps volunteers. New soil was placed in planters and used to upgrade the existing soil. New garden boxes were been built. The goal for this project is to create a wet-bed and container garden in an outdoor courtyard. This project will be completed by the spring of 2008.

Amidon Elementary

The WPD assisted Natural Resources Conservation Service in creating a wildlife habitat in front of the school by providing mulch and planting trees and shrubs. A rain garden was planted in the rear of the school which got mowed over and vandalized during the summer months. Additional resources have been acquired by the school to renovate the school's entire outdoor space. WPD's role at this time is building a team to support, use and maintain the garden.

District of Columbia Environmental Education Consortium (DCEEC)

Watershed Protection Division continues providing the leadership to strengthen DC Environmental Education Consortium. The following activities and tasks were accomplished in 2007 to strengthen organizational networking, training and knowledge for DC environmental organizations and teachers:

Schoolyard Greening Committee

- Organized the first D.C. School Garden Week in October 2007 and conducted these activities:
  (a) Held a kick-off event at LaSalle School which was attended by Mayor Fenty, Chancellor Rhee and Ward 5 Council Member Bowser along with 50 other participants.
  (b) Held the annual schoolyard greening tour, attended by 15 participants, and showcased LaSalle Elementary (French drain, wet land and butterfly garden); Cesar Chavez Public Charter School (outdoor classroom, bird and butterfly garden); Lowell School (day-lighted stream); Sharpe Health School (gardens for special needs children); and Watkins Elementary (series of theme gardens surrounding the school).
  (c) Held a panel discussion at John Burroughs Elementary with several experts on *How to Begin and Maintain a School Garden*, attended by 13 teachers and community leaders.
  (d) Sponsored a photo-garden contest with 100 student submissions, and presented prizes to 16 student winners at the kick-off event.
  (e) Hosted the first Garden Bike Tour of five "edible" school gardens, attended by 25 bikers.
  (f) Held school garden work days at Anacostia High School, Bancroft Elementary, Burroughs Elementary and Cardozo High School and involved 186 students and volunteers.
  (g) Received press coverage on NBC Channel 4 and write-ups in the *DC Examiner*, *Hill Rag*, *Northwest Current*, *DC Urban Gardeners* and *Washington Gardener* magazine).
- Updated the "Schoolyard Greening Portfolio", a list of all greening projects in DC schools.

- Conducted a 9-hour schoolyard greening workshop entitled ***"Get Out and Garden! Take Advantage of Your Outdoor Classroom"*** for 20 teachers on April 24 and 28 at U.S. Botanic Garden and U.S. National Arboretum. The workshop included: (1) an experiential, hands-on work day to learn how to grow plants from seeds, plant and maintain a garden with students, compost and conduct soil tests; (2) a discussion of how to integrate garden related curricula into DCPS Standards-Based Worksheets; (3) an introduction to available local resources to help with schoolyard projects; (4) a guided tour of the U.S. Botanic Garden and access to its website for teachers; (5) plants, posters, and activities to be used in the classroom.
- With the DC Green Infrastructure Collaborative, created a GoogleMap of schoolyard greening sites.
- With the National Environmental Education Foundation, compiled a list of school garden curricula available on the web.
- Sponsored a tour of Sidwell Friends Middle School, the first Platinum LEED-certified school in the country.
- Developed "Do Not Mow" signs with the District Department of the Environment.
- Expanded the listserv to include 136 members.

Outreach Committee

- Designed, ordered and distributed 500 promotional memo clips featuring the DCEEC logo and website.
- Maintained and updated the DCEEC website, www.dcnaturally.org .
- Updated Point of Contact (POC) list comprised of over 45 DCPS teachers and added it to the DCEEC member listserv.
- Compiled 3 quarterly POC mailings to DCPS, charter and public schools.
- Provided a POC orientation at *Watershed Wise DC* workshop.
- Created a promotional binder and display board for events that DCEEC attends.
- Created a DCEEC business-card.

Education Committee

- Strengthened communication with Dr. Michael Kaspar, DCPS Director of Science, arranging for updates on teaching standards and staff development activities.
- Attended two DC Public Schools Science teachers' meetings, distributing the Meaningful Watershed Education Experience DVD and talking about watershed education programs available to schools.
- Conducted a second *Watershed Wise D.C.* eight-hour professional development training workshop for 34 educators on May 5, 2007, at Environmental Concern in St. Michael's, MD, entitled *A Wetlands Chesapeake Bay Education Escapade.* This workshop, which provided a $240 stipend for each teacher, was also a part of the DC Public Schools Teacher Staff Development Institute. Teachers learned about different kinds of wetlands, hydric soils and wetland plants and animals, and received a wealth of resource materials.
- Conducted a two-hour training for DCEEC members, teachers and community leaders entitled *Positive Behavior for Difficult Students.* This training was designed to help educators manage special needs students during field experiences and environmental education presentations. The presenters provided practical ways to manage students with disabilities, autism, ADHD and other mental health illnesses. There were 20 educators present.
- Represented DCEEC on the Science Technology, Engineering and Math coalition.
- Conducted a 2008 B-Wet Grant Application Workshop.

Collaboration Committee

- Participated at the North America Association for Environmental Education (NAAEE) 2007 Conference. Hosted the Intra-City Collaboratives: Networking & Capacity Building Event, at which eight states were represented by two-dozen attendees from various collaboratives.
- Provided DC representation on the Urban Ecology Collaborative's (UEC) Education Workgroup and Green Jobs Network.

Ways & Means Committee

- Registered to become a 501(c)(3) non-profit.

Meaningful Watershed Educational Experiences

Hard Bargain Farm

Watershed Protection Division sponsored five (5) Meaningful Watershed Education Experiences at Hard Bargain Farm in Accokeek, Maryland, with a total of ninety–four (94) fifth-grade students and 17 adults attending the overnight experience.

National Oceanic and Atmospheric Administration (NOAA) Grant

Through funding awarded by the National Oceanic and Atmospheric Administration, Watershed Protection Division was able to sponsor over 900 Meaningful Watershed Education Experiences for District School children. A new three-year NOAA grant for 2008 has been awarded to provide training to teachers and a meaningful watershed education experience to 4th grade students. The title of the program is *Watershed Wise DC Fellowship Program.*

Environmental Events

- Coordinated the 11th celebration of the Anacostia River Environmental Fair in Anacostia Park for over 400 students in grades 4-8 from 11 District schools, and recognized five individuals for their commitment to the environment. A total of 23 organizations participated as exhibitors, conducting environmental activities for the children and environmental education activities for the teachers.
- Participated in the Kenilworth Aquatic Gardens Lily Festival, Energy Earth Week, Anacostia River Cleanups, DC Green Festival, Ward 7 Eco Fest and DC School Garden Week.
- Conducted the annual Summer Environmental Education Camp at Camp Brown July 15 – 20, 2007, with eighty students and their counselors participating in a week-long environmental camp
- Conducted six (6) Project Learning Tree and three (3) Wet in the City workshops with 124 educators participating.
- Provided 2 to 3 hours of watershed education for each of six (6) schools, four-hundred-thirty-nine (439) students and thirty-five (35) teachers as a part of the Watershed Protection Division Summer Environmental Education Outreach Program.
- Held the annual National Oceanic and Atmospheric Administration Youth Summit on October 19, 2007, for 100 students at Anacostia High School.

Students planted a native habitat garden and attended two environmental education workshops on watersheds and native plants.
- Co-sponsored the 2007 city-wide Science Fair providing materials, judges and prizes for environmental science project winners.
- Conducted a social marketing survey in Pope Branch for the RiverSmart Homes Project.

E. Pollution Prevention

Highlights

- District Department of Environment (DDOE) has developed RiverSmart Homes, a new program that will encourage homeowners to install low-cost residential Best Management Practices (BMP) and institute green landscape management practices that will help reduce storm water pollution.
- DC Clean Marina Program won the Department of Interior 2006 Environmental Award for Stewardships and Partnerships.
- A clean marina evaluation tool was finalized and put into use throughout August 2007.
- The Clean Marina Program hosted a boater education workshop for 30 attendees with representatives from 11 marinas and clubs, DC Harbor Patrol, DDOE and National Park Service.
- DDOE made IPM presentations to community gardeners and distributed more than 100 IPM garden bags to community gardeners and District residents.

RiverSmart Homes

Residential development (single family houses, townhouses and apartments) is the single largest land use in the District of Columbia and these lands are one of the primary sources of pollution to the our waterways - contributing pollutants through combined sewer overflow events and urban storm water runoff.

One of the greatest needs and the greatest challenges for the District of Columbia is to reduce water pollution by affecting behavioral change at the individual household level. The District has recognized that without convincing homeowners to adopt non-point source pollution prevention techniques on their properties, the city will have a difficult time achieving its water pollution reduction goals.

In the past, the District has encouraged residential best management practices through grants to local non-profits and directly through its work. These programs have met with mixed success. Some problems the District has seen in instituting homeowner-targeted programs include:

- A lack of personal transportation to event locations must work around public transportation (35% of District households do not own cars (US Census Bureau))[1]

[1] 45 percent of District residents drive on a regular basis. 21 percent take Metrorail for their normal form of transportation, 14 percent carpool, 9 percent use Metrobus, 5 percent walk and 1 percent ride their bike

- Those with personal transportation do not have large enough vehicles to transport give-a-way items (rain barrels and saplings)
- Homeowners have difficulties installing and/or maintaining Best Management Practices (BMPs) (downspouts poorly disconnected, trees die, rain barrels overflow)
- Homeowners face problems with city regulations (properly placing trees, having downspout disconnect inspected, properly installing rain gardens).

For these reasons, DDOE has developed a new residential BMP program called "RiverSmart Homes." The program is an incentive-based program that will encourage homeowners to install low-cost residential best management practices and institute green landscape management practices that will help improve local water quality. The specific items offered through the grant include:

1. Disconnecting downspouts and installing rain barrels;
2. Disconnecting downspouts and installing rain gardens;
3. Planting large shade trees;
4. Removing impervious areas and replacing them with pervious surfaces; and
5. Instituting native landscaping and integrated pest management programs.

These incentives have been designed to bring the BMP to the homeowner and install it for them in order to eliminate the difficulties faced in earlier campaigns. The program will hinge around "storm water audits" of the properties of interested homeowners that will be performed by DDOE personnel. These audits will identify ways that homeowners can reduce storm water pollution from their property. The homeowner can then choose which of the audit items they would like to pursue. If the homeowner chooses low-cost items such as downspout disconnect, rain barrel installation, and tree planting, the city will install the selected items for the homeowner at no cost. For more expensive items (rain gardens, changing impervious surfaces to pervious ones, and native landscaping) the homeowner can choose a contractor or do the work themselves. Once the work is complete DDOE personnel will return and inspect the installation and if it is done properly, then the City will provide a rebate to offset the cost of installation.

DDOE's RiverSmart Homes program will reduce nonpoint source pollution through lot-level activities that encourage infiltration. By infiltrating rainwater before it becomes storm water through the installation of practices like rain gardens and permeable pavement, the District will reduce pollutants (including oils and grease, toxic chemicals, nutrients, sediments and fertilizers) flowing to our local streams. Furthermore by planting trees and installing BayScaping the city will reduce the need to use fertilizers and pesticides by reducing lawn areas and encouraging the use of native plants that are adapted to local conditions.

The DDOE started this program in 2006 using two parallel tracks. First, the city funded the installation of 8 demonstration sites – one in each Ward of the city. To date

(US Census Bureau). The Metrorail is a system of above and underground stations throughout the District and into the outlying suburbs. A new form of transport for the area is car sharing, where residents can rent cars that are strategically placed throughout the city on an hourly or daily basis.

five of the eight sites have been installed and the three remaining sites will be installed in the Spring of 2008. The city will use these sites, located on the property of eight District residents, for garden tours; giving interested homeowners physical examples of practices that are sometimes difficult for the non-experts to conceptualize.

Also in 2006, the DDOE began surveying residents to determine their feelings about and understanding of the practices that DDOE will be promoting through the RiverSmart program. These surveys, along with feedback from smaller focus groups, will be used to develop a social marketing campaign to educate District residents about storm water pollution and what they can do to prevent it.

Clean Marina Program

The Clean Marina program, a partnership among the Watershed Protection Division, the National Park Service/National Capital Region, and marinas in the District, is a voluntary program through which marina operations become more environmentally responsible and marina managers educate the boating public on environmentally responsible boating practices. The program encourages marina, boatyard, and boat club operators, as well as the boating public to take further steps to reduce pollution and protect and improve environmental quality. Because marinas abut and are actually in the District's waters, almost everything that takes place there has the potential to affect water quality. Actions by individual boaters, through maintenance, operation, and storage of recreational vessels, can affect air and water quality. Marinas have the potential to reduce pollution to the District's environment by adopting practices that reduce the amount of waste produced as well as the way waste is handled.

In 2007, the DC Clean Marina Program conducted the following outreach activities:

- Hosted a boater education workshop focused on bilge cleaning, cleaning boat bottoms, and on holding tank maintenance and pumpouts. Approximately 30 people attended, with representatives from 11 marinas and clubs, DC Harbor Patrol, District Department of the Environment, and National Park Service.
- Had a booth at the Washington Boat Show and shared information and printed materials with attendees about environmentally responsible boating and pollution prevention.
- Had a booth at the Cherry Blossom Festival event held on April 7 on the waterfront of the Washington Channel. The information passed out and visible on the display complemented information provided by the U.S. Coast Guard and DC Harbor Patrol.

In 2007, the Clean Marina Program finalized and put into use a clean marina evaluation tool addressing nine indicators of program success. The indicators include controls to boat sewage, fuel/oil spill, solid waste, derelict/abandoned boats, parking runoff, boating cleaning, public and staff education, and number of DC designated clean marinas. The evaluation compares the 2002 (before) and 2006 (after) boating seasons.

During the 2007 site visits, managers and officers at each facility were very cooperative and openly shared their data, observations and thoughts about the clean

marina program and affects on their boaters. Almost all were very enthusiastic about the environmental improvements they had adopted. As a result of the widespread clean marina educational effort and new management tools in use, the District's boating population has become much more aware and proactive concerning stewardship of boating waterways and dockage. Every marina and club report significant improvement in boater attitude and acceptance about clean marina efforts. Many yacht clubs in the District now make clean boating/marina a regularly scheduled agenda item at each club membership meeting.

Before this program started, management at only one marina and one yacht club had received some environmental training, but by 2006, staff and/or board members at all 13 facilities had received Clean Marina program training. The five staff/club board members trained in 2002 grew dramatically to 115 by 2006. The training set into motion almost all of the changes in attitudes, management and practices now widely seen around the District's boating waterfront.

The DC Clean Marina Program won the Department of Interior 2006 Environmental Award for Stewardships and Partnerships, presented at a ceremony in November 2007.

DC Integrated Pest Management Program

To conduct IPM outreach to community gardens, DDOE contacted community garden leaders and potential partners, requesting to do an IPM presentation to their group. In spring and summer of 2007, DDOE made presentations on using IPM techniques in gardening to those groups that responded. Included in the presentations was information on the regulation of pesticides in the District, how pesticides affect local waterways, the importance of IPM, and additional resources.

DDOE staff also selected and purchased a medium-sized green garden bag that includes five garden tools, and put the Department logo on its front. In addition to the garden tools, each bag was filled with a District-produced DVD on pest management, a soil test kit, an online resource guide, and a folder containing various materials on IPM.

As incentive, the bags and educational materials were distributed to all of the community gardeners who attended a presentation. By the end of September 2007, 108 bags had been distributed. In October 2007, remaining garden bags were distributed to homeowners who all expressed interest in DDOE's new "storm water-friendly" landscaping project.

WPD Storm Drain Marker Program

Watershed Protection Division created a new tracking system for the Storm Drain Marker Program and determined that, out of the 23,917 storm drains installed in the city, approximately 920 of them are marked with a storm drain marker, or approximately 3.84% of storm drains are

marked. In 2007, the Watershed Protection Division installed approximately 225 stormdrain markers with various volunteer groups, focusing on the targeted watersheds of Pope Branch and Watts Branch. The WPD will use the new tracking system to improve drain marking efficiency, increase numbers of marked drains, and make the information available to other interested groups.

F. Future Challenges and Actions

In fiscal 2008, the District of Columbia's Watershed Protection Division will continue to follow the directive of its Nonpoint Source Management Plan. Planned activities for Nonpoint Source programs include:

Storm Water, Sediment, Floodplain Management and Low Impact Development

- Continue to review and approve construction plans for compliance with sediment and storm water pollution control regulations.
- Begin bidding out chosen Low Impact Development projects to pre-qualified design and construction firms.
- Pursue funding from the Chesapeake Bay Targeted Watershed Program to implement a comprehensive Low Impact Development, rainbarrel and storm water retrofit education program that will involve many District partners.
- Update the District's Floodplain Management Regulations (DCMR 20, Chapter 31) pursuant to changes in the National Flood Insurance Rate Maps (FIRMS).
- Expand the District's *Storm Water Management Guidebook* to reflect new developments in areas such as industrial and commercial pollution prevention planning, redevelopment project design flexibility, low impact design techniques, and non-structural Best Management Practices such as street sweeping, landscaping for storm water facilities, rooftop treatment, and proprietary storm water products.

Inspection and Enforcement

- Improve compliance with District of Columbia soil erosion and sediment control and storm water management regulations through inspection and enforcement action.
- Provide excellent customer service by investigating and resolving one-hundred percent of citizen complaints relating to soil erosion control and drainage problems in a timely manner.
- Continue, with USDA-Natural Resources Conservation Service, to implement *The Maintenance of a Soil Survey for the District of Columbia* to provide necessary soil data.
- Submit revised soil erosion and sediment control, and storm water management regulations to the Office of the Attorney General for review and approval.

Habitat Creation and Restoration

- Oversee construction of the Hickey Run Best Management Practice and pursue rehabilitation plans for Hickey Run.

- Complete, with DC Department of Parks and Recreation and DC Water and Sewer Authority, stream and sewer replacement designs for Pope Branch.
- Begin construction of stream restoration of Watts Branch with partners US Fish and Wildlife Service and Natural Resources Conservation Service.
- Update watershed implementation plans for Rock Creek, Pope Branch, Ft. Dupont, Anacostia, Watts Branch and Hickey Run watersheds, and make plans available on new DDOE website.
- Initiate a feasibility study for the daylighting of a portion of Broad Branch in the Rock Creek watershed.
- Continue monitoring of Fringe and Heritage wetland restoration projects.
- Investigate other stream restoration projects that might be feasible in Rock Creek and seek Nonpoint Source buy-in on these projects.

Environmental Education and Outreach

- Implement the *Watershed Wise DC Fellowship Program* of teacher training and meaningful watershed environmental education experiences for 4th grade students in the District, funded by a new NOAA grant.
- Conduct another schoolyard conservation tour.
- Continue to build upon an education collaborative composed of not-for-profit environmental organizations, teachers and government agencies to coordinate environmental education activities in the city.
- Expand funding sources for Meaningful Watershed Education Experiences.
- Conduct the third *Watershed Wise DC* Meaningful Watershed Education Experience teacher training workshop on pollution prevention and trees.
- Assist with the marketing and outreach of the RiverSmart Homes Program.

Pollution Prevention

- Work with certified Clean Marinas and marinas seeking certification to increase their pollution prevention activities.
- Continue to implement an Integrated Pest Management campaign targeting community gardeners and homeowners in the District, including the distribution of 500 'Green Gardening Tool Kits', to reduce storm water pollution run-off.
- Use the new Watershed Protection Division tracking system to improve drain marking efficiency, increase numbers of marked drains, and make the information available to other interested groups.
- Complete the installation of eight funded demonstration sites on the property of District residents in each Ward of the city as part of the RiverSmart Homes program.
- Use survey responses of District residents, along with feedback from smaller focus groups, to develop a social marketing campaign to educate residents about storm water pollution and what they can do to prevent it.

Summary

The highly urbanized setting and the multiplicity of land ownership within DC can present challenges to nonpoint source pollution reduction; however, the same challenges present opportunities to form creative partnerships and test innovative technologies. An ongoing goal of the Nonpoint Source Management Program is to continue development of monitoring and measurement techniques to further assess the effectiveness of nonpoint source pollution control programs. Additionally, the District of Columbia's Watershed Protection Division is working to further integrate its regulatory and non-regulatory branches.

By strengthening its existing programs and continuing to seek innovative solutions for reducing nonpoint source pollution in an urban setting, the District of Columbia will move steadily toward reaching the goals outlined in its Nonpoint Source Management Plan.

Appendix A: Financial Information

FY 2007 Grant	*Source*	*Federal*	*Match*
Nonpoint Source Implementation	US Environmental Protection Agency	$1,220,800	$823,200
Chesapeake Bay Implementation	US Environmental Protection Agency	$767,000	$767,000
Meaningful Watershed Experience	National Oceanic and Atmospheric Administration	$106,000	$62,669
Schoolyard Conservation	National Oceanic and Atmospheric Administration	$52,000	$5,000

Appendix B: Agency Partners

District of Columbia - Lead Agency:
Department of the Environment, Watershed Protection Division

City Government:
DC Department of Parks and Recreation (DPR)
DC Department of Public Works (DPW)
DC Department of Transportation (DDOT)
Deputy Mayor's Office for Planning and Economic Development
DC Office of Planning (OP)
DC Public Schools (DCPS)
DC Soil and Water Conservation District (DCSWCD)
DC Water and Sewer Authority (WASA)

Federal Government:
Architect of the Capitol
National Park Service (NPS)
US Army Corps of Engineers (USACE)
US Fish and Wildlife Service (USFWS)
US Department of Agriculture Natural Resources Conservation Service (USDA-NRCS)
US Environmental Protection Agency (EPA)
US Environmental Protection Agency, Chesapeake Bay Program (CBP)
US Geological Survey (USGS)
Various federal facilities

Local Groups:
Anacostia Watershed Society (AWS)
Casey Trees Endowment
DC Greenworks
FORCE, Washington, DC
Green Spaces for DC
Interstate Commission on the Potomac River Basin (ICPRB)

Living Classrooms Foundation, Washington, DC
Low Impact Development Center, Inc.
Marina Environmental Education Fund (MEEF)
Metropolitan Washington Council of Governments (MWCOG)
Potomac Conservancy
Student Conservation Association (SCA)
Sustainable Community Initiative (SCI)
Washington Parks & People